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longx, and *Palinurus quadricornis* are next described, and an explanation attempted of the uses of the several parts and their subserviency to the purposes of that sense.

The author concludes by a description of another organ situated at the base of the large antennæ, which it appears has been confounded with the former by some anatomists, but which the author conjectures may possibly constitute an organ of smell. The paper is accompanied by illustrative drawings.

5. "A statement of Experiments showing that Carbon and Nitrogen are compound bodies, and are made by Plants during their growth." By Robert Rigg, Esq., F.R.S.

The author, finding that sprigs of succulent plants, such as mint, placed in a bottle containing perfectly pure water, and having no communication with the atmosphere except through the medium of water, or mercury and water, in a few weeks grow to more than double their size, with a proportionate increase of weight of all the chemical elements which enter into their composition, is thence disposed to infer that all plants make carbon and nitrogen; and that the quantity made by any plant varies with the circumstances in which it is placed.

6. "Physiological inferences derived from Human and Comparative Anatomy respecting the Origins of the Nerves, the Cerebellum, and the Striated Bodies." By Joseph Swan, Esq. Communicated by Richard Owen, Esq., F.R.S.

The author remarks that those parts of the nervous system which are concerned in motion and in sensation exhibit a great similarity in all vertebrate animals. To the first of these functions belong the anterior and middle portions of the spinal cord and medulla oblongata, including the anterior pyramids, the crura cerebri, and some fibres leading to the corpora striata and the convolutions, and also the cerebellum. To the function of sensation belong the posterior surface of the spinal cord, the posterior and lateral portions of the medulla oblongata, including the posterior pyramids, the ventricular cords, and the fourth and third ventricles.

From a general comparison of the relative magnitude and structure of these several parts in the different classes of vertebrated animals, the author infers that only a very small portion of the brain is necessary for the origins of the nerves, their respective faculties being generally derived near the place at which they leave the brain. These origins are traced in various cases, where, from peculiarities of arrangement or of destination, they present certain remarkable differences of situation.

The author is led to consider the cerebellum as an appendage to the brain, rather than to the medulla oblongata and spinal nerves, for it does not correspond with either the number or the size of the sensitive or motor nerves; and that it is not required for the intellect, for the special senses, for common sensation, or for volition, appears from its size bearing no proportion to the strength of

any of these faculties. Neither is it concerned in digestion or assimilation, nor does its size present any relation with the heart, the lungs, the muscles, the limbs, the vertebræ, the ribs, or any other organ, not even those of reproduction. As, however, its nervous connexions are principally with those parts which are exclusively subservient to the will, it is probable that it is concerned in the completion, and not in the commencement of the voluntary act. It is probable, also, that the principal crossing of impulses from one side to the other takes place in the medulla oblongata and the motor tracts of the brain. Some of the arrangements of its lobules may have reference to the paces and attitudes of different animals. The will, acting through the cerebral convolutions, sets in action certain muscles placed in proper directions; but the influence of the cerebellum is required for giving them steadiness amidst the alternations from one set to another, and especially when a slight change disturbs the centre of gravity, and until the balance is effectually restored by a subsequent act of the will operating on antagonist or other muscles. The cerebellum also constitutes an additional focus of nervous influence, and may, therefore, cooperate with the brain in increasing the vital powers, and imparting greater energy to the various functions of the body.

The author regards the corpus striatum as being a centre for conveying to the mind the perception of the motions of the limbs and of their different parts. He concludes with some remarks on the double crossings of the tracts of the centres of the nerves of the arms and legs, and the explanation given by these facts to various pathological phenomena.

7. "Nouveaux faits à ajouter à la Théorie de la Chaleur et à celle de l'Évaporation." Par Daniel Parat, Médecin à Grenoble. Communicated by the President.

The author commences by explaining his conception of the nature of heat, of which he gives the following definition:—"Mouvements centraux obscurs de la cohésion devenus extemporanément plus rapides, et dilatant de plus en plus tous les corps par une augmentation ainsi acquise de toutes les forces centrifuges." He adopts the theory that the evaporation of water in contact with air is a process identical with chemical solution, and adduces as evidence supporting his views various circumstances which are common both to evaporation and to the solution of a salt in water.

8. "On the nature and properties of Iodide of Potassium, and its general applicability to the cure of Chronic Diseases." By James Heygate, M.D., F.R.S.

The author has been led by his experience to estimate highly the medicinal properties of the iodide of potassium (which he prefers to the tincture of iodine) in various diseases, and thinks that when it is administered judiciously no deleterious effects are likely to arise from its use.

9. "Observations on the relation which exists between the Re-